BOOK NOTICES

Primate Evolution and Its Anatomical Evidence

Man's zoological position as a species is a question which always claims human interest. It will continue to be a source of speculation awaiting the day when his history recorded in fossil and artifact will have been fully disclosed.

"In order satisfactorily to study the specific problem of Man's phylogenetic origin, it is essential to visualize in proper perspective the evolutionary development of the whole group of Primates of which he is but one member."

Thus Professor Clark introduces a detailed description of the comparative anatomical and paleontological evidence which forms an essential basis of speculation on the phylogenesis of the Primates. Separate chapters are devoted to the evidence of the skull, the teeth, the limbs, the brain and special senses, the digestive, and the reproductive systems. Fossil material is described and compared with modern Primates. The author has brought together a great deal of knowledge of the anatomy of living Primates, much of which is the result of recent studies. The last chapter is a summary supplemented by useful charts showing the main morphological trends in the Lemuroidea, the Old and New World Tarsioidea and the Anthropoidea. Thus man is seen to comprise only one family in the large, divergent, and ancient order of Primates.

This book should prove invaluable to the Anatomist, the Anthropologist, and the General Zoologist as an authentic and comprehensive source book in its field.—JOHN W. PRICE.

Early Forerunners of Man, by W. E. LeGros Clark. xvi+296 pp. Baltimore, William Wood and Co., 1934.

Sahara

To most of us the term "desert" conotates something of Oriental mystery and strangeness; hence we should find much of interest in the recent translation by Dorothy F. Mayhew of E. F. Gautier's work, "Sahara, the Great Desert." Gautier explains the unique setting of the Sahara, which covers many more degrees of longitude than degrees of latitude, and has a peculiar climate which influences desert life. The geography and the geologic history since the close of the Tertiary is discussed. Here the influence of the "pre-desert" drainage on the present geographic organization on life is shown. Various regions are discussed in more detail to bring out the vivid difference between "normal" humid regions and the desert life. The influence of the Nile on the Sahara is clearly explained, it being the only river crossing this human barrier. The book is in reality a manual of geography and Quaternary geology for this great arid area which in the geologic past was not a dessicated region.

The volume is concise almost to the point of being abrupt, but for all that, is very readable and interesting. Of the 32 illustrations 6 are small maps or block diagrams showing various local details such as stream capture and the like. A map of the Sahara on the scale of about 220 miles to the inch, is folded in. This map shows sand dune areas and regions elevated 1,600 to 5,000 feet, 5,000 to 10,000 feet and over 10,000 feet, as well as tours, railways and wells (important in such dry regions).

This authorized English translation has incorporated in it much additional material which Professor Gautier has accumulated since the first appearance of "Le Sahara" in 1928. The Columbia University Press has given us a well-handled book, Miss Mayhew a fine translation, and Professor Gautier an interesting and valuable work on this great region.—WILLARD BERRY.

Sahara, the Great Desert, by E. F. Gautier (translated by Dorothy F. Mayhew). xviii+264 pp. New York, the Columbia University Press, 1935.

Principles of Insect Morphology

On rare occasions there appears in a given scientific field an outstanding masterful presentation of the subject matter in the form of a book. Recently a book of this character has appeared in the field of entomology, namely, "Principles of Insect Morphology," by R. E. Snodgrass, of the United States Department of Agriculture, Bureau of Entomology and Plant Quarantine. An examination of the book soon reveals its outstanding features. It is an exhaustive compilation of the best literature on the subject and also includes a great deal of original information Without much doubt the publication will prove to be an excellent reference for entomologists, particularly for those conducting investigations on external or internal anatomy of insects.

One of the remarkable features of the book is the presence of numerous, clear-cut and beautifully labelled drawings. These add greatly to a clear understanding of the discussions. The book presents an introductory chapter, a concise chapter on embryology and development, nine chapters on external morphology, and eight chapters on internal morphology. At the ends of many chapters an excellent glossary of terms has been included. It is the personal opinion of the reviewer that a general glossary at the end of the book would have been more convenient.

All libraries possessing entomological literature and students and investigators in entomology should possess, or have access to, this excellent publication.

A. PETERSON.

Principles of Insect Morphology, by R. E. Snodgrass. xix+667 pp. New York and London, McGraw-Hill Book Co., 1935.

Dynamical Meteorology

Professor Brunt divides his recent book into twenty chapters with a total of some 208 sections. The first chapter gives the facts which call for explanation. The second deals with certain statistical and thermal relationships. Chapter three deals with damp air, while four handles thermodynamics of the atmosphere. Radiation is considered in chapter five and radiation in the troposphere in the sixth. Radiative Equilibrium and the stratosphere are discussed in the seventh chapter. Chapters from eight on consider such subjects as general equations of motion, motion under balanced forces, surfaces of discontinuity, winds, turbulences, eddies, classification of winds, life-history of surface air currents, the polar front and cyclones, anticyclones, and general circulation. Some idea of the physical (and mathematical) side of the book can be gotten from the number of mathematical equations in the first 16 chapters, there being some 567 major ones.

This is not an elementary volume on meteorology but rather one for advanced students who have sufficient physical background to enter upon the theoretical field. The professional meteorologist will find much of interest here.

The 112 figures, ranging from autographic records to polar projections showing temperature and pressure, are carefully selected and very clear. Professor Brunt's style is direct, making for easy reading. As would be expected, the volume uses mostly British or European examples for small areas. It fills a place which, as far as I know, has not previously been filled in English-speaking countries.

WILLARD BERRY.

Physical and Dynamical Meteorology, by David Brunt. xxii+411 pp. Cambridge, at the University Press. New York, The Macmillan Co., 1935.

Physics from Then until Now

This book gives to the layman a very graphic and fascinating account of the development in physical science from its beginning in pre-Greek times to the modern era. It can be recommended to readers who have only a small knowledge concerning this subject and is especially suitable as a text for introductory and survey courses for college students desiring to visualize what has been the purpose and scope of physical science.—H. H. NIELSEN.

The Rise of Modern Physics, by Henry Crew. Second Edition, revised and enlarged. xix+434 pp. Baltimore, The Williams and Wilkins Co., 1935.

Pyrethrum

Beginning with a history of the production and manufacture of pyrethrum products this interesting discussion treats of the growing, cultivating, harvesting and marketing of the plant and its products. The insecticidal or active principle is then discussed and the methods used to evaluate the insecticidal value both chemically and biologically. The comparative value of various commercial grades of pyrethrum is discussed, the effect of storage, light and heat upon the reduction of the active principle and the manufacture and production of different types, grades and extracts. The latter portion deals entirely with the uses of pyrethrum as an insecticide in connection with various types of insects such as live stock, household, horticultural and other insect pests. This portion contains the results of the more important research work. An excellent bibliography containing some six hundred references is appended.

This is a valuable reference book for students who are interested in methods of insect control.—DWIGHT M. DELONG.

Pyrethrum Flowers, by C. B. Gnadinger. xi+269 pp. Minneapolis, McGill Lithograph Co., 1934.

Man and His Future

The British have pioneered in the field of popularizing science, and now the author of "The Mechanism of Creative Evolution" has joined the parade. This new little volume from his pen brings genetics to the general reader in most interesting and readable form. An intriguing opening chapter on the mystery of life is followed by the usual account of Mendel's work and the principles of heredity. Several chapters on genes and the gene complex give the author an opportunity to exercise his sense of the dramatic. The discussion of genes leads naturally into an account of evolutionary processes, past and present. This in turn opens the door to a discussion of possible trends in evolution in the future. Here the author gives his imagination full rein, and the ensuing speculations are thought-provoking, to say the least. The book can be read in an hour, and it will be an hour well spent.—L. H. S.

Heredity and the Ascent of Man, by C. C. Hurst. ix+136 pp. Cambridge, England, at the University Press. New York, the Macmillan Co., 1935.

Quantum Mechanics

This is a textbook especially useful for and adaptable to the needs of the experimental physicist. The mathematical prerequisites are kept to the absolute minimum, the requirements being only a working knowledge of calculus and differential equations. After an introduction to the principle of the quantum mechanics, it is applied to many important problems of especial interest to the chemist and physicist, the solution to the Schrödinger equations being carried out in scrupulous detail. Of especial value are the many tables and appendices found throughout and at the end of the book.—H. H. NIELSEN.

Introduction to Quantum Mechanics, by L. Paulding and E. B. Wilson, Jr. xiii+468 pp. New York, McGraw-Hill Book Co., 1935.

Oriental Scutelleroidea

One might judge from the title of this work that it would be a rather dry subject to review, but it is, in fact, much more than a faunal catalogue since the author discusses the faunal relations and derivations in such manner as to make it a distinct contribution to zoogeography. There is an introduction of nine pages discussing the sources of information and the general faunal areas, a catalogue occupying 168 pages, and annotated bibliography which is very complete and occupies seventy pages, the whole volume consisting of iv and 294 pages.

The distinctly interesting geographic section is included in his discussion of the faunal regions and these are given as (1) Indo-China which includes South China and Formosa, (2) Manchurian, including North China, Manchuria and Korea, (3) Indian, including India proper, (4) Ceylonese for the Island of Ceylon, (5) Malaysian, including Malay Peninsula and adjacent islands, (6) Philippine,

(7) Austro-Oriental, including most of the East Indian Archipelago, (8) Japanese, and (9) Siberian, including Mongolia, Tibet and Sinkiang. In discussing these inter-relationships of faunae Dr. Hoffman has been wisely conservative in the omission of any final conclusions or deductions, evidently appreciating the uncertainty of positive conclusions in a region where there has been so much opportunity for intermigration. Such a group of insects, however, is perhaps less affected by migrations than many other groups, but it would seem that there is a fair agreement with the faunal areas that have been indicated for such vertebrate groups as birds and mammals which, of course, have been much more thoroughly studied than the insects.

The work is a good example of typography, corresponding with the Journal of the Lingnan University of which this is a Science Bulletin. It is certainly a very commendable contribution to our knowledge of a little known region.

H. OSBORN.

An Abridged Catalogue of Certain Scutelleroidea (Plataspidae, Scutelleridae, and Pentatomidae) of China, Chosen, Indo-China, and Taiwan, by William E. Hoffmann. iv+294 pp. Lingnan University, Canton, China, 1935.

Life Relations of Algae

This book attempts to present in as simple a fashion as possible the author's conception of an orderly arrangement of algological material about which "any desired course may be planned." After a chapter on the classification of algae "based on evolutionary development, with special reference to pigmentation and food reserves," the major portion of the book (some 400 pages) is given over to a systematic treatment of the Cyanophyceae (Myxophyceae), Rhodophyceae, Phaeophyceae, Chrysophyceae and Chlorophyceae, with complete description to genus. A novel feature is the inclusion of a number of life cycles and descriptions of plants other than algae presented as bases of comparison with those of algae.

The five major groups of marine algae are considered as radically different from each other especially in the matter of pigmentation. The course followed in their evolution represents a parallel development of types. The author believes that "the factor of illumination has been and is the primary force in determining the present distribution of marine algae." On this assumption the blue-green algae developed originally at a time of very weak light, known as the Cyanophycean period. As stronger and stronger rays of light penetrated to the earth there occurred the Rhodophycean period, the Phaeophycean period, the Chrysophycean period, and finally the Chlorophycean period. The first four periods arose in the archaeozoic era, and the last one in the proterozoic.

The last three chapters discuss in order "The Problem of Algal Control," "The Algal Food of Animals," and "Marine Algae, Our Richest Source of Vitamins: Algae as Food for Man."

As one might expect, knowing the author's long years of study of the algae of the Pacific, the point of view is that of a Marine Algologist. Teachers not proficient in Latin and Greek will welcome the careful attention paid to the etymology of generic terms. An appendix is devoted to the "Standardization of Method of Drawing Algae for Publication." The illustrations and diagrams in most cases are presented on a large scale. An extended bibliography and a good index complete the book.—L. H. TIFFANY.

The Algae and Their Life Relations, by Josephine E. Tilden. xii+550 pp. Minneapolis, The University of Minnesota Press, 1935.

Physical Principles

A new and very useful textbook suitable for an introductory course in physics for college students. In its mathematics prerequisite the book is very modest, and in it is incorporated the desirable idea of introducing as early as possible important concepts from modern physics. In the last chapters especially, several of these topics are expanded upon in some detail. The book contains throughout many clarifying illustrations and a great many excellent problems are available for student use.—H. H. NIELSEN.

College Physics, by Mendenhall, Eve and Keys. x+592 pp. Boston, D. C. Heath and Co., 1935.

Learning Physiological Principles

This is an excellent laboratory guide for the training of students in the drinciples of physiology. Emphasis is placed upon the critical evaluation of the results of experiments, the drawing of suitable inferences, and the application of the principles involved. The distinction between actual objective data and the principles and inferences accruing from such data is an important one, and the authors have been careful to observe the distinction and train the student to observe it. The book is well and thoroughly illustrated. Of especial value is the appendix, containing information on the preparation of materials, the methods of chemical procedure, and the dosages of drugs for various experimental purposes.

L. H. S.

Experimental Physiology, by Maurice B. Visscher and Paul W. Smith. 191 pp., 75 fig. Philadelphia, Lea and Febinger. 1935.

Minerals for the Beginner

Someone looking for a simple beginning book for those who are interested in minerals and who lack formal training will welcome this little volume. Dr. Hawkins tells what minerals are and how to find and collect them. He discusses the types one is likely to find in various kinds of quarries. Finally (and this takes up most of the book) he describes some 187 minerals. A short bibliography and an index close the book.

The book is not exhaustive and makes no pretense of being so. However, for beginners or those interested as amateurs it is a good introduction.

WILLARD BERRY.

The Book of Minerals, by Alfred C. Hawkins. xii+161 pp. New York, John Wiley & Sons, 1935.

King's Bay

On the west coast of Spitsbergen in latitude 790 N. is situated a region of very interesting geology and complicated structure. The desire for information on the area due to the presence of coal resulted in the excellently arranged, well written and careful study of the geology of the King's Bay region.

In the area are found, from the oldest to the youngest, the following sections: basal granites overlain by the Hecla Hoek series of Ordovician age or older, composed of limestones, dolomites, quartzites and mica shists, upwards of 6000 meters thick. Overlying these in angular unconformity are Devonian conglomerates, sandstones and shales of about 300 m., and in places by some 100 m. of lower Carboniferous beds. These last two are overlain unconformably with middle and upper Carboniferous (450 m.), littoral and marine limy beds, with a Cyathophyllum limestone at the top. Some 250 m. of chert and cherty beds above the Cyathophyllum limestone are referred to upper Carboniferous and Permo-Carboniferous. Above these is a 40 m. layer of glauconite, green sandstone. Overlying unconformably these series of older rocks are a series of shales and clays, the Bottom shales, some 50 m. thick, which are referred to the Cretaceous. Conformably above them are some 200 m. of conglomerates, sandstones, shales and coals of Paleocene and possibly Eocene age. The six workable coals occur in this series. It is estimated that the seams contain 16.2 million tons, of which 6.58 million are workable. The coal was discovered in 1610 by English whalers, production began in 1916 and continued to 1929 when a slump in prices and an accident caused a shut-down. The mines are now full of ice, but a watch is maintained on the properties. The structure is rather complicated; much of the folding is late Tertiary.

This is an excellent memoir, well written (in English) and well illustrated. It is a valuable contribution to the geology of high latitudes.—WILLARD BERRY.

Geology of the King's Bay Region, Spitsbergen, with special Reference to the Coal Deposits, by Anders K. Orvin. 195 pp. Skrifter om Svalbard og Ishavet, No. 57. Oslo, 1934.

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